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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/790,360

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Kenneth Kay Smith

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08/10/2006

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EXAMINER

BAKER, STEPHEN M

ART UNIT

PAPER NUMBER

2133

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/790,360

Applicant(s)

SMITH ET AL.

Examiner

Stephen M. Baker

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>070905,030104</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 14-17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Regarding claim 14, a Reed-Solomon code, required by claim 13, is inherently a "linear block code" and so no further limit is apparent.

Regarding claim 15, a Reed-Solomon code, required by claim 13, is inherently a "cyclic redundancy check code" and so no further limit is apparent.

Regarding claim 16, a Reed-Solomon code, required by claim 13, cannot be a "convolutional code" and so no further limit is apparent.

Regarding claim 17, a Reed-Solomon code, required by claim 13, is inherently a "burst-correcting code" and so no further limit is apparent.

2. Claim 7 is objected to because of the following informalities: "the number of the second parity symbols which is greater than number" apparently should be "the number of second parity symbols is greater than the number".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon the lack of details for the convolutional code embodiment, including no mention of the specific convolutional codes, and no mention of details for decoding embodiment.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 11-15 and 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,772,385 to Ohyama *et al* (hereafter "Ohyama") in view of U.S. Patent No. 5,805,564 to Kobayashi *et al* (hereafter "Kobayashi").

Ohyama discloses arrangements for decoding a Reed-Solomon product code (Fig. 33) in a DVD optical disk storage device. In accordance with the DVD standard format, the inner code parity (PI) is ten bytes and the outer code parity (PO) is sixteen bytes, hence the PO encoding "has a higher capability" than the PI encoding. Ohyama shows (Fig. 2) "first and second decoders" (10, 12) that are "configured to recover" the original data used to generate the product code. As described by Ohyama (column 16, lines 44-47) when error-check results indicate no errors after correction by PI-decoding

or PO-decoding, the original data can be transferred to the host without further decoding. Accordingly, Ohyama teaches a decoding arrangement "wherein the second decoder recovers the information encoded by the second encod(ing) ... only if the first decoder cannot recover the information."

Ohyama does not show the arrangements for PI encoding and PO encoding required to generate DVD product code, and thus does not show "first and second encoders" corresponding to the PO code and PI code. Kobayashi shows (Fig. 8) a typical arrangement consisting of first and second encoders (48A, 48B) for generating a product code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the product code encoding required by Ohyama's DVD product code by means of "first and second encoders." Such an implementation would have been obvious because using first and second encoders is a typical way of generating a product code, as evidenced by Kobayashi.

Regarding claims 2 and 4, the recited limitations are generic to all product codes.

Regarding claim 3, 21 and 24, the recited limitations are generic to all product code encodings.

6. Claims 1-15 and 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,311,522 to Murakami (hereafter "Murakami") in view of Kobayashi.

Murakami discloses arrangements for decoding a Reed-Solomon product code in a magnetic tape storage device. Murakami's inner code parity is eight bytes and Murakami's outer code parity four bytes, hence Murakami's "second code" encoding

“has a higher capability” than Murakami’s “first code” encoding. Murakami shows (Fig. 9) “first and second decoders” (4, 6) that are “configured to recover” the original data used to generate the product code. As described by Murakami (column 2, lines 63-68) conventional decoding of the product code involves performing outer code correction processing only when inner code correction processing indicates that errors remain. Accordingly, Murakami describes as conventional a decoding arrangement “wherein the second decoder recovers the information encoded by the second encod(ing) ... only if the first decoder cannot recover the information.”

Murakami does not show the arrangements for encoding the product code, and thus does not show “first and second encoders” corresponding to the inner and outer codes. Kobayashi shows (Fig. 8) a typical arrangement consisting of first and second encoders (48A, 48B) for generating a product code. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to implement the product code encoding required by Ohyama’s DVD product code by means of “first and second encoders.” Such an implementation would have been obvious because using first and second encoders is a typical way of generating a product code, as evidenced by Kobayashi.

Regarding claims 2 and 4, the recited limitations are generic to all product codes.

Regarding claim 3, 21 and 24, the recited limitations are generic to all product code encodings.

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Baker whose telephone number is (571) 272-3814. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Stephen M. Baker  
Primary Examiner  
Art Unit 2133

smb